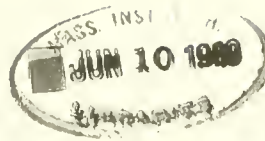


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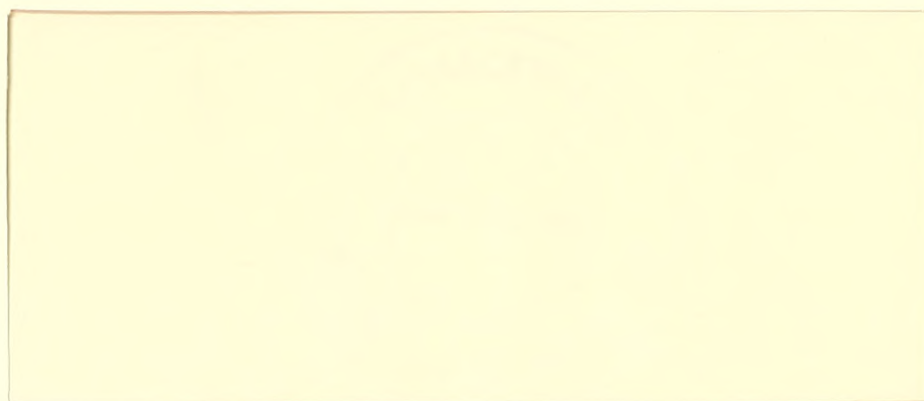
Strategic Orientation of Business Enterprises:
The Construct, Dimensionality, and Measurement

N. Venkatraman

WP# 1901-89

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MASSACHUSETTS
INSTITUTE OF TECHNOLOGY
50 MEMORIAL DRIVE
CAMBRIDGE, MASSACHUSETTS 02139



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N. Venkatraman

Massachusetts Institute of Technology
E52-553, Sloan School of Management
Cambridge, MA 02139

(617) 253-5044

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Abstract

This paper reports the results of a research study aimed at conceptualizing and developing valid measurements of key dimensions of a strategy construct -- termed Strategic Orientation of Business Enterprises. This construct is first defined by addressing four theoretical questions of -- scope; hierarchical level; domain; and intentions versus realizations, and then conceptualized in terms of six dimensions. Subsequently, operational indicators are developed for the six dimensions in terms of managerial perceptions across two hundred business units in a field study. An evaluation of the measurement properties within an analysis of covariance structures framework indicated that the operational measures developed here largely satisfy the criteria for unidimensionality, convergent, discriminant, and predictive validity. Implications and lines of extensions are outlined.

Key words: Strategy -- Business Level; Measurement Scales; Confirmatory Factor Analysis

1.0 Introduction

Research in strategic management is at critical cross-roads today, with increased emphasis on developing theoretical concepts and testing empirical relationships rooted in such concepts. Such a transformation critically depends on the conceptualization and measurement of the *strategy concept* and its *derivative constructs* (Schendel and Hofer, 1979; Hambrick, 1980; Venkatraman and Grant, 1986). Thus, in spite of several discussions on alternate approaches to operationalizing strategy (Ginsberg, 1984; Hambrick, 1980; Pitts and Hopkins, 1982; Snow and Hambrick, 1980), the linkage between theoretical definitions and their corresponding measures has been generally weak. Most existing measures for the strategy constructs are either nominal (and/or single-item) scales that have questionable measurement properties or multi-item scales whose measurement properties (such as reliability, and unidimensionality, convergent and discriminant validity as well as nomological validity) have not been systematically assessed (Venkatraman and Grant, 1986).

This research intends to contribute to the measurement stream of strategic management research with an explicit recognition that measure development cannot be divorced from the broader theoretical network (Cronbach, 1971; Hempel, 1952)¹. The specific aim is to develop and validate a set of operational measures for a particular conceptualization of strategy. The expectation is to provide an initial set of operational measures with strong support in terms of their measurement properties that can be used by other researchers for theory-testing as well as further extensions/refinements.

The paper is divided into four sections. The first section provides the background for this research through a brief historical trace of the various approaches to the measurement of strategy constructs. In the second section, a theoretical circumscription of the proposed strategy construct is presented. The research method including the data analytical approach and results are presented in the third section. The fourth section discusses the implications of the results and outlines a set of future research directions.

2.0 Background

2.1 Alternate Approaches to Strategy Measurement

Narrative Approach. This reflects the case-based tradition of business policy, predicated on a view that the complex characterization of strategy should only be *described* in its holistic, and contextual form. Since the distinctiveness of the strategy concept lies in its uniqueness to a particular setting (e.g., Andrews, 1980), the implication is that strategy can (and should) be best *described* verbally, and any attempt to develop a measurement scheme will be incomplete. This reflects views such as: strategy is "an organizational process forever in motion" or as "the interface between the organizational process of formulation and the organizational process of implementation" (Andrews, 1980); or that this concept is to be viewed "more as a fluid to be worked with rather than a thing to be actualized" (Evered, 1983; p. 61). Such philosophical abstractions of the strategy concept are best captured in narrative descriptions than through finely-calibrated measuring schemes.

While such an approach has its role for conceptual developments, it has limited use for testing theories (see Hempel, 1952) pertaining to the effectiveness of various strategies under differing environmental, organizational, and temporal conditions. Further, if we accept the need to adopt mid-range theorizing and/or contingency theory perspectives (Steiner, 1979; Harrigan, 1983; Ginsberg and Venkatraman, 1985), the narrative approaches should give way for superior schemes.

Classificatory Approach. The first movement away from the idiosyncratic, narrative descriptions of strategy is reflected in the development of strategy classifications -- either conceptual or empirical. The conceptual classifications that are inductively derived are termed as 'typologies', and prominent ones include: Rumelt (1974); Hofer and Schendel (1978); Miles and Snow (1978); Porter (1980); and Wissema, Van der Pol, and Messer (1980). The distinguishing feature is that such typologies are rooted in a set of parsimonious classificatory dimensions or conceptual criteria. While typologies are best known for their conceptual elegance, they do suffer from an inherent weakness in that "it is fairly easy to find a single dimension on which a typology

can be based and which will.... support any given philosophical orientation" (Carper and Snizek, 1980; p. 70).

The empirical classifications are termed as 'taxonomies', and prominent ones include: Miller and Friesen (1978) and Galbraith and Schendel (1983). These reflect empirical existence of internally consistent configurations, but it is important to recognize that their development is sensitive to the choice of underlying dimensions as well as the analytical method used to extract the taxonomies (Hambrick, 1984; Miller and Friesen, 1984). Thus, while it serves to capture the comprehensiveness and integrative nature of strategy through its internal coherence, it does not reflect the 'within-group' differences along the underlying dimensions.

Comparative Approach². The aim of the third approach is to identify and measure the key traits (also termed as dimensions) of the strategy construct. Consequently, the focus is less on categorization into one particular cell of the typology (or on the development of a parsimonious taxonomy) but on measuring the differences along a set of characteristics that collectively describe the strategy construct. Over the years, several researchers have sought to develop measurement schemes to capture the differences in strategies (Miller and Friesen, 1984; Dess and Davis, 1984; Hambrick, 1983).

The attractiveness of this approach lies in its ability to decompose the variation that is seen across different strategy classifications into more 'fine-grained' differences along each underlying traits (or, dimensions). This requires that the traits have specific theoretical content as well as adequate operational measures since this approach has its roots in the philosophy of empirical science (Hempel, 1952; Carnap, 1966). Given that "all theories in science concern statements mainly about constructs rather than about specific, observable variables" (Nunnally, 1978; p. 96), the process of construct *development* and *measurement* is at the core of theory construction.

However, the present state of attention to construct measurement in strategic management is inadequate. Researchers continue to propose and employ measures without corresponding tests for unidimensionality, reliability, convergent , discriminant and predictive validity (Venkatraman and Grant, 1986). In the absence of a systematic basis to evaluate the adequacy of measurements,

confidence in research results is considerably eroded, which implies that the managerial implications derived from such results may be questionable.

2.2 Study Objectives

This study adopts the *comparative approach* to strategy measurement and aims at linking the conceptual definition and empirical indicators of a single construct, termed as Strategic Orientation of Business Enterprise. Specifically, the objective is to arrive at a set of operational indicators for important dimensions of this construct that meet minimal criteria of measurement. It is hoped that the results of such an exercise will be of use to strategy researchers either directly in their research contexts or as a basis for refinement and extension in the best tradition of cumulative theory building and testing.

2.3 Premises

Premise One: Strategy Research Within a 'Variance' Perspective Requires Valid Measures. Following Mohr (1982), strategy research can be divided into the 'process' and the 'variance' perspectives. The former is characterized by research studies that seek to describe the *process* of strategy formation (Mintzberg, 1978; Mintzberg and Waters, 1982; 1985; Miles and Snow, 1978), resource allocation (Bower, 1970), and internal corporate venturing (Burgelman, 1983) rather than explain the variation in a dependent variable through a set of independent variables. In contrast, studies subscribing to the 'variance' perspective aim at theory testing through confirmation/disconfirmation of a specific array of hypotheses. For instance, several PIMS-based research seek to explain variations in business performance through a set of independent variables reflecting both strategic resource deployments and environmental characteristics (Hambrick, 1983; Prescott, 1986; for reviews, see Ginsberg and Venkatraman, 1985; and Ramanujam and Venkatraman, 1984).

The typical research practice in the variance perspective is as follows: the theory to be tested is stated in terms of the language of the researchers as relationships among a set of theoretical constructs; the data for testing the theory is obtained through indicators described in the language of those providing the data (typically senior managers of target businesses); and the assessment of

correspondence between the theoretical constructs and their empirical indicators is construct validation -- which is a prerequisite for the interpretation of the substantive relationships among the theoretical constructs based on the observed relationships among the empirical indicators (Hempel, 1952; Bagozzi, 1980; Schwab, 1980). Thus, our first premise is that strategy research within a 'variance' perspective is critically dependent on the *quality* of the operational measures.

Premise Two: The Search for a Universal Conceptualization of Strategy Is Futile. Given the eclectic nature of the strategy field, it is premature to restrict the number and diversity of approaches to conceptualize the strategy construct. However, it is important that each conceptualization is accompanied by corresponding operational schemes. As Cameron and Whetten noted: "Constructs such as intelligence, motivation, or leadership --whose construct space, by definition... is not bounded-- have been better understood as limited aspects of their total meaning have been measured" (1983; p. 276). The implication is that a particular conceptualization --which builds from the existing theoretical perspectives in strategy research-- should serve as the referent for the development of operational measures.

Thus, the output of this study would be a set of valid measures anchored in a particular theoretical conceptualization of the strategy concept. This can be subsequently used in different contexts to further refine/extend the conceptualization as well as the operational measures (e.g., convergent and discriminant validity of other measures). Such an approach reflects a cumulative theory-building perspective where progress is made by successively testing the efficacy of the measures in varying theoretical networks (Cronbach, 1971).

Premise Three: Construct Measurement is at Least as Important as Examination of Substantive Relationships. Any scientific research discipline can be viewed in terms of two *interrelated* streams -- substantive and construct validation (or, measurement). The former reflects the relationships among theoretical constructs inferred through empirically observed relationships, while the latter involves the relationships between the results obtained from empirical measures and the theoretical constructs that the measures are purported to assess (Schwab, 1980). Although these are to be treated as end-points in a continuum, within

strategic management, the former has been over emphasized with correspondingly little attention to the latter. Since substantive relationships are fundamentally dependent on the measurement relationships, it is necessary to recognize that construct measurement is at least as important as the examination of substantive relationships.

While most amongst us would not quarrel with the need to assess the measurement properties of strategy constructs, the degree of research attention to construct measurement is far less than that for substantive issues. This could be partly attributed to the fact that most researchers trade-off their efforts in favor of theoretical relationships among their constructs with an *implicit* belief in the adequacy of their measures. This paper takes the opposite view and devotes more attention to the development and validation of the measures. While we recognize that measure development cannot be carried out in isolation of the theoretical network, it is necessary to note, at the outset, that the research questions focus more on the correspondence between the measures and their constructs than on the relationships among the constructs *per se*.

3. 0 Circumscribing The Theoretical Construct

A major task in conceptualizing a theoretical construct relates to the specification of its boundaries. For strategy constructs, this is particularly complex given the wide array of differences in terminology, disciplinary orientations as well as underlying assumptions. The conceptual domain of the proposed construct is delineated by anchoring it with four theoretical questions that are central within strategic management research. These are: (a) *Scope*: should the definition distinguish between "means" and "ends"?; (b) *Hierarchical Level*: should the construct be defined at a particular level of the organizational hierarchy or should it be level-free?; (c) *Domain*: should the domain be restricted to some 'parts' (i.e., some functional focus) or cover a broader perspective?; and (d) *Intentions Versus Realizations*:: is the distinction between 'intended' and 'realized' strategies relevant for conceptualizing and measuring this construct?

The logic in using these questions is to provide a systematic framework for conceptualizing the construct, and use it as a referent for operational schemes. We believe that these four questions collectively address important aspects of conceptualizing the strategy construct. Further, we

recognize the controversial nature of these questions, where the opposing viewpoints are valid for alternate strategy conceptualizations. Thus, our purpose in selecting these questions is *not* to reconcile these opposing views but to take a particular stance to guide the measure development exercise. In other words, our aim is to explicitly link the conceptual domain (in terms of these four questions) with the operational domain. This ensures that the isomorphic nature of the linkage between construct definition and construct measurement is maintained.

3.1 Scope: 'Means' Versus 'Means and Ends'

Some authors prefer to separate strategies, viewed as means from goals, viewed as ends (e.g., Hofer and Schendel, 1978; Schendel and Hofer, 1979), while others prefer to treat strategy as a comprehensive concept encompassing both goals (ends) and means (e.g., Andrews, 1980). Within a general management perspective (Andrews, 1980) -- where formulation and implementation are intertwined and goals and means interlinked, there are no particular reasons to separate the two. However, the newer strategic management research paradigm (Schendel and Hofer, 1979) explicitly separates goals (goal structure and goal formulation) from strategies (formulation, evaluation, and implementation). In this vein, MacCrimmon (forthcoming) views strategic management in terms of three components: ends (goals); means (actions); and conditions (contexts). Thus, a relevant question for strategy research study could be to examine the efficacy of a particular strategy (means) to attain certain ends (goals) within a particular setting (conditions).

This study separates strategies from goals, consistent with the views of Hofer and Schendel (1978), Schendel and Hofer (1979), MacCrimmon (forthcoming), and Mintzberg and Waters (1985). Thus our focus is on the means adopted (i.e., resource deployment patterns) to achieve the desired goals (i.e., ends, purposes, and objectives). This choice is advantageous in that it provides a *restricted* scope of domain for the construct such that the measures of strategy can be used to examine relationships between strategies and goals in different contexts. Had the domain of the strategy construct included goals, the link between strategy and goals would have been isomorphic, resulting in an inability to examine the nature of linkages between strategies and

goals as well as explore notions of equifinality (i.e., the possibility of alternate combinations of strategies and conditions to achieve the same ends).

3.2 Hierarchical Level

There is reasonable consensus on the three-level categorization of the strategy concept -- corporate, business, and functional (Grant and King, 1982; Hax and Majluf, 1984; Hofer and Schendel, 1978). Strategy at the corporate level is primarily concerned with answering the question: "In what set of businesses is this organization engaged in?" and is viewed in terms of the pattern of linkages among the different businesses constituting the corporate profile (Rumelt, 1974). Strategy at the business level (also termed as business-unit, or strategic business unit, SBU) is concerned with the following question: "how do we compete effectively in each of our chosen product-market segment?" Accordingly, the theoretical issues at this level relate to the requirement of matching environmental opportunities and competitive threats with the efficient deployment of organizational resources (Bourgeois, 1980; Grant and King, 1982; Hofer and Schendel, 1978). In addition, the general theme of competitive strategy and the attainment of competitive advantage is an important issue at the business strategy level (Porter, 1980; Porter, 1985). Strategy at the functional level focuses on the maximization of resource productivity within each of the specified functions (such as operations or marketing) and is generally derived from the business level strategy (Hofer and Schendel, 1978).

The construct is defined at the level of the business for the following reasons. Since strategic management aims to integrate key functions toward adopting a general management perspective (Schendel and Hofer, 1979), the functional level is not particularly important. Similarly, as organizations increasingly diversity (Chandler, 1962; Rumelt, 1974) and operate in multiple product-market segments, the corporate level is too aggregated for understanding the strategic responses to environmental influences such as competitive moves, technological changes, as well as entry and exit of competitors. Thus, business unit is an appropriate and useful level of analysis.

3.3 Domain: Distinguishing Between "Parts" Versus "Holistic" Perspectives

Following Hambrick (1980), a distinction is made between "parts" of strategy and strategic typologies reflecting a more holistic or interconnected perspective. For example, the categorization proposed by Buzzell, Gale, and Sultan (1975), and Porter (1980) reflect the competitive or the product-market sector of the overall strategy concept, while definitions and conceptualizations of strategy adopted by Miller and Friesen (1978), Miles and Snow (1978) and Mintzberg (1978) reflect a much broader and holistic perspective.

This study focuses on a broader notion of strategy based on two reasons. One, a focus on one or two areas such as marketing (e.g., market share position, new product introduction frequency or geographical coverage) or manufacturing (e.g., research and development and product quality) taps *only* a functional orientation which does not truly reflect the general strategic orientation of a business. The second reason is that although many holistic definitions of strategy have been offered (Andrews, 1980; Chandler, 1962; Grant and King, 1982; Miles and Snow, 1978; Mintzberg, 1978), measurement schemes have not adequately operationalized such definitions. Thus, by operationalizing the construct in holistic terms, the results of this study can be used to more directly employ such richer definitions in strategy research.

3.4 Intentions Versus Realizations

The fourth issue to be addressed in developing the theoretical framework of the construct relates to the distinction between 'intended' and 'realized' strategies (Mintzberg, 1978). As argued by Mintzberg and Waters "conceiving strategy in terms of intentions means restricting research to the study of the perceptions of what those who, it is believed, make strategy intend to. And that kind of research -- of intentions devoid of behavior-- is simply not very interesting or productive" (1982; p. 465). By viewing 'realized' strategy as a "pattern in a stream of decisions" (Mintzberg, 1978), strategies become consistencies in the behavior of organizations (Mintzberg and Waters, 1982). In line with our earlier decision to view strategy as a pattern of critical decisions, along a holistic perspective, and in conjunction with the arguments by Mintzberg and Waters, the focus is on the realized strategies.

Thus, these four issues serve to delineate the domain of the construct. The next task is to identify critical dimensions *within* this domain, and this is addressed below.

3.5 Specifying the Construct's Dimensionality

A priori versus a posteriori. Given the complexity of the strategy concept, it is logical to assume that Strategic Orientation of Business Enterprises (STROBE) is a multi-dimensional construct. However, its dimensionality can be arrived at one of two different ways. One is *a priori*, namely develop the different dimensions of the construct based on the theoretical perspectives that guided the construct definition. Thus, the dimensionality is pre-specified and subsequently validated by testing against data, where the data analytic scheme is viewed as a means towards confirmation or rejection of the theoretical dimensions derived. Illustrative examples are: Dess and Beard's (1984) study on Aldrich's (1979) dimensions of organizational environments; and the Aston Program on organization structure (Pugh and Hickson, 1976).

The other approach is not to pre-specify the dimensions but to empirically derive them *a posteriori* through data analytic techniques such as factor analysis or multi-dimensional scaling (e.g., Blackburn and Cummings, 1982). This approach is generally considered to be 'theory-free' and is adopted only in those cases where little theoretical basis exists for *a priori* deriving the dimensions. In such cases, the danger is that the dimensions may not be interpretable for use in substantive research and that they may not be stable over different study settings. More importantly, the data analytic scheme occupies a central role in the conceptualization and operationalization of the construct.

Given our intention to develop operational measures for important theoretical dimensions of strategic orientation rather than uncover dominant dimensions through data-analytic methods, we decided to specify the dimensions *a priori*. Accordingly, six important dimensions of strategic orientation are identified for this study. A brief description of the dimension is provided in the following paragraphs.

Aggressiveness. This dimension refers to the posture adopted by a business in its allocation of resources for improving market positions at a relatively faster rate than the competitors

in its chosen market. These may be based on product innovations and/or market development (Miles and Cameron, 1982) or high investments to improve relative market share and competitive position (e.g., Buzzell, Gale and Sultan, 1975; Fruhan, 1972; Hofer and Schendel, 1978). It also reflects the notions of 'explosion' (i.e., improve competitive position in the short-run) as conceptualized by Wissema et al (1980), and the strategy of 'multiplication', i.e., expansion of market share by multiplying as noted by Vesper (1979) and the pursuit of market share as an important path towards achieving business unit profitability.

Analysis. This dimension refers to the trait of overall problem solving posture, as noted by Miller and Friesen (1984). They consider this to be an important characteristic of the organizational decision-making, referring to the extent of tendency to search deeper for the roots of problems, and to generate the best possible solution alternatives (1984). It also relates to the 'comprehensiveness' trait conceptualized and measured as an important construct of strategic management process by Fredrickson (1984). This dimension also refers to the extent of internal consistency achieved in the overall resource allocation for the achievement of chosen objectives (Grant and King 1982) as well as the use of appropriate management systems (information and control systems; managerial reward systems; competitive intelligence systems, etc.). However, it should be noted that this trait does *not* reflect the 'analyzer' behavior of the Miles and Snow (1978) typology, which simply indicates the middle range or balance between 'purely prospecting' and 'purely defensive' behavior. The prospecting and defensive traits are considered separately later.

Defensiveness. This dimension reflects defensive behavior (Miles and Snow, 1978), and is manifested in terms of emphasis on cost reduction and efficiency seeking methods. It also reflects Thompson's (1967) view of organizations seeking to defend their core technology as well as Miles and Cameron's (1982) concept of domain defense (i.e., preservation of one's own products, markets, and technologies) strategy.

Futurity. Few would disagree that the concept of strategy is firmly grounded in the notion of 'desired future,' and the process through which a business plans to reach the desired state (Andrews, 1971; Ansoff, 1975; Grant and King, 1982). This dimension reflects temporal

considerations reflected in key strategic decisions, in terms of the relative emphasis of effectiveness (longer-term) considerations versus efficiency (shorter-term) considerations. For example, emphasis on basic research can be argued to have a longer-term focus than application-oriented research programs which reflect a shorter-term focus. This trait is manifested through more emphasis to areas such as forecasting sales and customer preferences as well as formal tracking of environmental trends.

Proactiveness. This dimension reflects proactive behavior in relation to participation in emerging industries, continuous search for market opportunities and experimentation with potential responses to changing environmental trends (Miles and Snow, 1978). It is expected to be manifested in terms of seeking new opportunities which may or may not be related to the present line of operations, introduction of new products and brands ahead of competition, strategically eliminating operations which are in the mature or declining stages of life cycle.

Riskiness. This dimension captures the extent of riskiness reflected in various resource allocation decisions as well as choice of products and markets. While risk-taking has been generally treated as an individual level trait (e.g., at the level of the CEO), it is viewed here as an organization-level construct, similar to the view adopted by Miller and Friesen (1984). It is expected to be reflected in criteria for decisions such as resource allocation (Hertz and Thomas, 1983; Bowman, 1982) and the overall pattern of decision-making (Baird and Thomas, 1985).

Thus, the STROBE construct is predicated on specific stances taken in relation to four theoretical questions and conceptualized in terms of the six dimensions. The next step is to arrive at operational indicators for the six dimensions that satisfy important measurement criteria.

4. 0 Operationalizing the Construct

4.1 Overview

Figure 1 is a schematic representation of the research study that links the conceptual development part with the measure development and validation part. As shown in Figure 1, the conceptualization is based on the specific positions taken in relation to the four theoretical questions and the articulation of the dimensionality in terms of theoretically defensible mutually exclusive

dimensions. The empirical component of the research involved six steps beginning with the selection of the items for each dimension and ending with the assessment of predictive validity. The remaining sections are organized sequentially through these various steps.

 Insert Figure 1 About Here

4.2 Item Selection

An initial list of items related to the six dimensions was generated through an exhaustive review of the research literature that relate to the four questions and the six dimensions. This list was evaluated by the principal researcher and sixteen others engaged in strategy research at the university where this study was conducted. The purpose was to ensure adequate coverage of the domain of each of the six dimensions as well as adherence to the stance taken in relation to each of the four questions. This list served to generate 61 statements, which was evaluated by two independent judges to ensure that the wording is as precise as possible. Some statements were recast to be positively slanted while others were negatively worded to reduce the possibility that the respondents would simply agree or disagree with all the statements without providing adequate attention to reading and comprehending the questions.

Our preference for perceptual data reflects our choice to operationalize the STROBE construct *in terms of managerial perceptions*. This, by no means, precludes the development of other operationalizations rooted in alternate data types (e.g., structured content-analysis of cases and descriptions; archival analysis as well as surrogate indicators reflecting resource allocations). Indeed, such future attempts would be in the best spirit of methodological triangulation.

This list of statements was administered to 39 executives who were participants in a management development program. The purpose was to ensure that the statements were understood without ambiguity. The results of this exercise indicated that most statements had a wide range of responses, and that the statements in general, were unambiguously worded.

4.3 Data

Data for this study were collected in two stages. A self-administered, structured questionnaire designed and administered according to Dillman's (1978) suggestions was used in both stages. The first mailing was to the presidents/chief executive officers of 250 strategic business units randomly chosen from the 1984 *Directory of Corporate Affiliations*. While 5 business units declined for reasons of company policy, 92 usable responses from as many units were received representing an effective response rate of 37.9%. Based on the preliminary data analysis at this stage, those items believed to be outliers (based on preliminary analysis of reliability) to the core concept were eliminated. This enabled us to refine the questionnaire for the next stage of data collection.

In the second stage, the refined questionnaire was sent to 450 such managers randomly chosen from the 1985 *Directory of Corporate Affiliations* (after carefully checking that there was no overlap with the sample of the first stage). 110 usable responses (and 24 declines) were obtained, representing an effective response rate of 25.8%. The effective response rate for the two phases combined is over 30% which is considered higher than typical responses obtained from such target populations (Gaedke and Tootelian, 1976). The samples from the two stages were combined only after ensuring that there were no significant differences along a set of strategic characteristics.³ The sample size for the analysis is (n=202), and the sample is profiled in Table 1.

Insert Table 1 About Here

4.4 Measurement Properties

Following Bagozzi (1980), Bagozzi and Phillips (1982), and Venkatraman and Grant (1986), the following measurement properties are considered minimally important for assessing the measures developed here: (a) internal consistency of operationalization (reliability and unidimensionality), convergent validity, discriminant validity, and nomological (i.e., predictive) validity. A brief overview of these measurement components is provided below, and the analytical steps are discussed later.

Internal consistency of operationalization refers to two related issues -- unidimensionality and reliability. Assessing *unidimensionality* ensures that all the items measure the underlying theoretical construct of interest, while reliability is an indication of the relationship between observed and true scores. It is a matter of empirical and logical necessity that the multiple items intended to measure an underlying construct be unidimensional because a set of items that is multidimensional cannot be treated in terms of a single value. *Reliability* is an indication of the degree to which measures are free from random error, and therefore yield consistent results. It can be viewed as the proportion of variance attributable to the underlying trait.

Convergent validity is an assessment of the consistency in measurements across multiple operationalizations, while *discriminant validity* is demonstrated when a measure does not correlate very highly with another measure from which it should differ. *Nomological validity* refers to the degree to which predictions from a formal theoretical network containing the concept under scrutiny are confirmed. Within this perspective, *predictive validity* entails the relationship of measures of a construct to a single antecedent or consequent.

4.5 Data Analysis

A Confirmatory Approach. The basic choice for the assessment of measurement properties is between the use of exploratory factor analysis --EFA (i.e., a scheme for exploring the underlying factor structure *without* prior specifications of the number of factors and their loadings)-- and the confirmatory factor analysis -- CFA (i.e., with precise specifications concerning the factor-structure and their loadings). This choice is closely related to an earlier research design decision to develop the dimensions *a priori*. If we had decided to arrive at the dimensions *post hoc*, EFA could be employed, but CFA is necessary to provide a strong test for the theoretically specified dimensionality. As Mulaik noted:

"The major disadvantage of pure exploratory factor analysis lies in the difficulty involved in interpreting the factors. The difficulty most often comes about because the researcher lacks even tentative prior knowledge about the processes which product covariation among the variables studies and has no basis on which to make his interpretation. On these circumstances, the interpretations given the factors may be nothing more than tautological transformation of the names of the original variables." (1972; p. 36)

"....exploratory factor analysis represents nothing more than a mathematical transformation of the information contained in the correlation matrix into a form which may (or may not) be more interpretable than the correlation matrix itself." (1972; p. 365).

Indeed, in comparing the relative roles and benefits of EFA and CFA, Bagozzi (1983) noted that "in their pure forms, the EFA and CFA approaches can be thought of as end points on a continuum. At one extreme EFA represents a procedure for the discovery of structure, while at the other extreme, CFA is a technique for testing hypothesized structure formed on an a prior basis" (pp. 134-135).

Thus, the confirmatory approach is adopted as implemented within the LISREL framework (Joreskog and Sorbom, 1978). This allows the specification of measurement errors within a broader context of assessing measurement properties (Bagozzi, 1980), and subscribes to a 'causal-indicator' model -- where the operational indicators are reflective of the unobserved theoretical construct. Such a framework is increasingly gaining acceptance in strategic management for examining critical measurement issues (Farh, Hoffman, and Hegarty, 1984; Venkatraman and Ramanujam, 1987 a, b).

Appendix I presents the 29 indicators (for the six dimensions of the strategy construct) that satisfied the various measurement criteria based on a set of analytical steps as discussed below.

4.6 Model Estimation and Results

Unidimensionality and convergent validity. Following Joreskog's work and the conventions of structural equation modeling, the model for unidimensionality and convergent validity is written as:

$$X = \Lambda\xi + \delta \quad (1)$$

where X is a vector of p measurements, ξ is a $k < p$ vector of traits, δ is a vector of unique scores (random errors), and Λ is a $p \times k$ matrix of factor loadings relating the observations to the underlying dimension. With the assumptions of $E(\xi) = E(\delta) = 0$; $E(\xi\xi') = \Phi$ and $E(\delta\delta') = \Psi$, the variance-covariance matrix of X can be written as

$$\Sigma = \Lambda\Phi\Lambda' + \Psi \quad (2)$$

where Σ is the variance-covariance matrix of observations, Φ is the matrix of intercorrelations among the traits, and ψ is a diagonal matrix of error variance (θ_δ) for the measures.

Maximum likelihood (ML) parameter estimates for Λ , Φ , ψ , and χ^2 goodness of fit index for the null model implied by equations (1) and (2) are obtained from the LISREL Program (Joreskog and Sorbom, 1978). The probability level associated with the given χ^2 statistic indicates the probability (p) of attaining a large χ^2 value given that the hypothesized model is supported. The higher the value of p, the better is the fit, and as a rule of thumb, value of $p > 0.10$ are considered as an indication of satisfactory fit (Lawley and Maxwell, 1971).

Since exclusive reliance on the χ^2 statistic is criticized for many reasons (see Fornell and Larcker, 1981), researchers increasingly complement this statistic with the Bentler and Bonett's (1980) incremental fit index --which is an indication of the *practical significance of the model in explaining the data*. The data is represented as follows:

$$\Delta = (F_0 - F_k)/F_0 \quad (3)$$

where F_0 = chi-square value obtained from a null model specifying mutual independence among the indicators, and F_k = chi square value for the specific model. The general rule of thumb is that should be greater than 0.90 (Bentler and Bonett, 1980) although some argue that it should *ideally* exceed 0.95 (Bearden, Sharma and Teel, 1982).

Table 2 summarizes the results of assessments for unidimensionality for the six dimensions. It provides the following model statistics for the assessment of goodness-of-fit: The χ^2 statistic, its associated degrees of freedom, p-level of significance, and the Bentler and Bonett index Δ . Based on columns (3) through (5), one can conclude that each of the six dimensions achieve unidimensionality and convergent validity at the monomethod level of analysis.

Insert Table 2 About Here

Internal Consistency of Operationalizations (Reliability). The above results for unidimensionality does not provide direct assessment of construct reliability. The typical approach for reliability assessment is in terms of the Cronbach α coefficient (Cronbach, 1951), which

ranges from 0 to 1, has the desirable property of being a lower bound of reliability (Lord and Novick, 1968) and is a commonly-used index for evaluating the reliability of strategy measures (Venkatraman and Grant, 1986). However, Cronbach α is based on restricted assumptions of equal importance of all indicators. An alternate conceptualization of reliability is that it represents the proportion of measure variance attributable to the underlying trait. Thus, following Werts, Linn, and Joreskog (1974), the reliability (ρ_c) can be calculated as follows:

$$\rho_c = \left(\sum_{i=1}^n \lambda_i \right)^2 \text{Variance (A)} / \left(\left(\sum_{i=1}^n \lambda_i \right)^2 \text{Variance (A)} + \sum \theta_{\delta} \right) \quad (4)$$

where ρ_c is the composite measure reliability, n is the number of indicators, and λ_i is the factor loading which relates item i to the underlying theoretical dimension (A). In a practical sense, ρ_c represents the ratio of trait variance to the sum of trait and error variances. When ρ_c is greater than 50% it implies that the variance captured by the trait is more than that by error components (Bagozzi, 1981). Specifically, values of ρ_c in excess of 0.50 indicates that at least 50% of the variance in measurement is captured by the trait variance. As shown in Table 3, all the ρ_c indices are greater than 0.50, while in two cases (defensiveness and riskiness), the values are precariously close to the threshold level.

Insert Table 3 About Here

Discriminant Validity. This refers to the degree to which measures of different dimensions of STROBE are unique from each other. This is achieved when measures of each dimension converge on their corresponding true scores (which are unique from other dimensions) and can be tested that the correlations between the pairs of dimensions are significantly different from unity. This requires a comparison of a model with this correlation constrained to equal one with the unconstrained model. A significantly lower χ^2 value for the model with the unconstrained correlation, when compared with the constrained model, provides support for discriminant validity. A χ^2 difference value with an associated p-value less than .05 (Joreskog, 1971) supports the discriminant validity criterion.

Table 4 reports the results of fifteen pairwise tests⁴ conducted for discriminant validity. Twelve of the fifteen tests indicated strong support for the discriminant validity criterion, while three tests failed to satisfy the discriminant validity criteria. These relate the analysis dimension to the dimensions of defensiveness and futurity, as well as the relationship between defensiveness and futurity. In this context, it is necessary to evaluate if there is evidence to conclude that the dimensions are identical or not. Since the conceptual domain of these dimensions do not overlap significantly and that they exhibit different patterns of relationships with the other dimensions, it is possible to accept the distinctive characteristics of these dimensions. With the caveat that three of the thirteen tests did not satisfy this criterion, we can conclude that the discriminant validity criterion is otherwise satisfied by these dimensions.

 Insert Table 4 About Here

Predictive Validity. This is an important component of the construct assessment since it moves the logic of assessment from statistical domain of intercorrelations among the multiple indicators designed to capture the underlying trait (i.e., unidimensionality, reliability, convergent and discriminant validity) towards the substantive domain focusing on relationships that are best interpreted in the light of the received theory. More specifically, predictive validity seeks to evaluate if the measures behave in accordance with the theory that divide the measurement exercise. As Schwab noted in relation to the construct of organizational performance, "[substantial] effort has been devoted to psychometric issues such as dimensionality, reliability, and errors of measurement.... relatively little concern, however, has been shown to the relationship that performance may have to other constructs as the basis for providing evidence on the construct validity of performance per se" (1980; p. 14). An examination of the behavior of focal measures with the measures of theoretically-related constructs is nomological validation (Cronbach and Meehl, 1955) and predictive validity is considered to be a central part of it (Bagozzi, 1981).

In this study, predictive validity of the STROBE measures is assessed by examining between each STROBE dimension and two important dimensions of business performance --

growth (effectiveness) and profitability (efficiency). This is represented in the form of structural relationships in addition to the measurement models. The structural relationship is represented as:

$$\eta = \Gamma\xi + \zeta \quad (5)$$

where, η = endogenous theoretical construct (i.e., performance), Γ = matrix of structural coefficients relating exogenous theoretical construct (i.e., performance dimension), ζ = residuals of endogenous theoretical construct.

Table 5 reports the results of the twelve tests carried out to relate each of the six STROBE dimensions to the two performance dimensions⁵. Results of these assessments are discussed in the next section. Since predictive validity is best assessed within specific theoretical networks, these results are best viewed as tentative support rather than as conclusive tests. Appendix II lists the indicators for the performance dimensions.

Insert Table 5 About Here

5.0 Discussion

This study distilled six important dimensions of strategic orientation at the strategic business unit level. Beginning with the large pool of indicators purported to operationalize the dimensions, a set of 29 indicators that validly operationalize the six dimensions was developed. The data analyzed for this study generally support the consideration of these dimensions as unidimensional, and that the operational measures are reliable and valid. In other words, we have distilled a set of indicators that behave as expected in terms of *both* statistical and theoretical criteria. A brief discussion of the relationships among the dimensions, as well as between each dimension and performance is provided below to further support the validity of the measurements distilled here.

5.1 Relationships Among the Strategy Dimensions

The pairwise tests carried out earlier in relation to discriminant validity assessment (see estimates for ϕ in Table 4) provide an indication of the relationships among the strategy dimensions considered in this study. The pattern of this result is discussed below in light of the received

theory in strategic management. Before we discuss the results, we wish to distinguish the assessments for construct validation from hypotheses tests. The former seeks to examine the degree of correspondence between the results obtained using a particular measurement scheme and the meaning attributed to those results. In contrast, the latter focuses on the specific relationships between constructs with a broadly defined theoretical framework, and these relationships are dependent on the results of construct validation tests. Any particular study can be interpreted either as support for construct validity or substantive validity depending on the veracity of the hypotheses linking the constructs studied (Schwab, 1980). Hence, it is essential to clarify that in discussing the results, we have taken them as evidence of construct validity rather than as tests of substantive relationships.

From Table 4, it is clear that the aggressiveness dimension, which largely reflects the market share seeking behavior of businesses is not significantly related to the other dimensions, except riskiness. This result is consistent with the expectation that the four other dimensions -- analysis, defensiveness, futurity and proactiveness -- reflect a more balanced perspective of strategic orientation in contrast to aggressive market share seeking behavior. Further, the significant association with the riskiness dimension ($\phi = .253$, $t = 2.50$, $p < .01$) is consistent with the extant research literature in marketing and strategic management implying a risky connotation for aggressive market share seeking behavior (Fruhan, 1972; Grant and King, 1982).

The analytical orientation of businesses strongly covaries with three key strategic dimensions such as defensiveness ($\phi = .947$; $t = 12.16$, $p < .01$) futurity ($\phi = .90$, $t = 14.46$, $p < .01$) and proactiveness ($\phi = .426$, $t = 4.48$, $p < .01$). If we view the analytical orientation of a business in terms of its formal planning and evaluation of strategic alternatives, it is not surprising that businesses achieving high scores on this dimension also tend to score high on other key aspects of strategy. It is particularly interesting and significant that there are no consistent relationships with riskiness and aggressiveness which tend to characterize actions and postures beyond formal organizational mechanisms. Perhaps, those businesses with strong analytical orientations are neither too risky nor too aggressive in pursuing market share in general. Similar

logic can be employed to interpret the strong relationship between defensiveness and futurity ($\phi = .82$, $t = 9.41$, $p < .01$) and between futurity and proactiveness ($\phi = .324$, $t = 3.24$, $p < .05$), which reflect a longer term orientation in the resource allocation operations of a business.

Thus, one can obtain a general pattern of relationships among the six dimensions of strategic orientation. However, given the heterogeneous nature of the sample, it is possible only to focus on general patterns of relationships as examinations of more specific relationships can (and should) only be carried out within specific organizational and environmental contexts. A logical step would be to use these measures in studies that adopt a theory-testing perspective.

5.2 Relationships Between Strategy Dimensions and Performance

A complementary analysis is to move beyond exploration of relationships between the strategy dimensions and to relate them to business performance, defined in terms of growth and profitability. The growth dimension reflects the performance trend of the business in terms of sales gains and market share gains, while profitability dimension reflects an efficiency view of current performance. As noted earlier, these dimensions were operationalized using multi-item measures which satisfied the same set of measurement criteria as the strategy measures. Again, the interpretation of these results must be made with the recognition that these are general patterns rather than specific patterns given certain contextual characteristics.

Several interesting and significant results can be discerned from the results summarized in Table 5. All the coefficients are in the expected directions and 7 out of the 12 are statistically significant at p-levels better than .01. Some of these results are interpreted below. For example, aggressively pursuing market share has no significant effect ($t = 0.937$; ns) on growth trends while it has a significant negative effect ($t = 2.43$; $p < .01$) on the current profitability position. This is consistent with the general thrust of the literature on the riskiness associated with the pursuit of market share in the overall business strategy (Fruhan, 1972), but is counter to the Hambrick, MacMillan and Day (1982) study which reported that market share gains can be achieved without less of current profitability.

Similarly, the results that the analytical orientation of a business has a positive and significant effect on growth ($t = 1.987$; $p < .05$) and on profitability ($t = 3.23$, $p < .01$) is consistent with the literature which emphasizes the virtues of formal strategic planning and analytical decision-making (see for instance, King and Cleland, 1978; Lorange and Vancil, 1977; Lorange, 1979; Steiner, 1979). The relationship between defensiveness and profitability is positive and significant ($t = 3.64$; $p < .01$) while its effect on growth is positive but not statistically significant ($t = 1.468$; ns). These results are generally consistent with the extant literature that emphasizes the need to defend one's present position (see for instance, Miles and Snow, 1978; Porter, 1980; Thompson, 1967.)

The futurity dimension had no significant relationship with both growth ($t = 1.565$; ns) and on profitability ($t = 1.387$; ns), while proactiveness dimension had positive and significant effects on both growth ($t = 2.85$; $p < .01$) and profitability ($t = 4.49$; $p < .01$) while riskiness had a negative and insignificant effect on growth ($t = -0.117$; ns) but a negative and significant effect on profitability ($t = -4.066$; $p < .01$).

Overall, the study results can be interpreted as providing adequate support for the construct validity of the measures developed here. The implication is that the operational measures seem to behave as would be expected given the general theoretical perspective of strategy. However, these are merely first steps at developing and employing 'validated measures' in testing substantive relationships. Given that construct development and validation is an ongoing activity of the research process, it is essential that systematic extensions be undertaken. The major lines of extension are enumerated below.

5.3 Extensions

Replications and Refinements. It is important to recognize that a single study does not provide 'valid measures' in the true spirit. This study, through successive stages of analysis and refinement, has arrived at a final list of operational indicators that satisfied important validity criteria. Such a list should be viewed on a 'first-cut' that *should* be replicated and refined in other research contexts. The confidence in such measurement schemes can not be obtained through

analytical sophistication, but is obtained only through use in substantive research. At a minimum, they should be used as anchors in related research studies to assess convergent and discriminant validity of measures. It has been unfortunate that strategy research is not characterized by a cumulative measurement orientation, and it is hoped that this study would provide initial impetus for systematic replications, extensions and refinements.

Multiple Informants. Given the perceptual nature of the data used to reflect the theoretical constructs, it is important to recognize the problems associated with the 'key informant' approach (Phillips, 1981; Huber and Power, 1985). Our use of a single key-informant in this study was deliberate. It was necessary to arrive at a list of acceptable indicators *before* proceeding to examine inter-informant consistency. A logical extension is to evaluate the degree of shared consensus regarding the organizational-level phenomenon of strategy that is being studied and measured. Such an extension would be useful to evaluate the degree of systematic method error attributable to different functional areas or hierarchical levels (Hambrick, 1981; Phillips, 1981) as well as serve as a better method of operationalizing the degree of 'consensus' within a management team.

Use of 'Different-Methods'. While multiple informants from the same organizational unit may be considered as 'multiple methods' of operationalization under the assumption that their responses are obtained independently, they could conceivably report in an unified voice, and thus reflect some underlying common method bias. Thus, the notion of multiple methods needs to be viewed within the larger issue of 'triangulation.' As Denzin noted, "observers delude themselves into believing thatdifferent variations of the same method generate... distinct varieties of triangulated data. But the flaws that arise from using one method remind". (1978; pp. 301-302). Possible methods for satisfying this type of designs include data from external observers such as suppliers, competitors, industry analysts as well as structured content analysis of published data (where available at the requisite level of analysis) Alternatively, perceptions of strategic orientation between corporate and business level would provide interesting insights on this issue.

Towards a Richer Taxonomy. Strategic management researchers are increasingly embracing the taxonomic perspective (Miller and Friesen, 1984; Hambrick, 1984). For such studies, the typical input is a set of individual indicators with strong assumptions of minimal measurement error. A superior alternative --one that incorporates parsimony as well as partials out measurement error-- would be to use the validated measures of the dimensions developed here to develop a taxonomic scheme. Specifically, a further corroboration of the predictive validity would be obtained if the taxonomic profile differs across 'high' and 'low' performing business groups.

6.0 Conclusions

This study developed the theoretical underpinnings of an important construct in strategic management, namely the strategic orientation of business enterprises. Subsequently, it derived its dimensionality and tested it by treating the individual dimension as the building block. Operational measures were developed and validated through the use of Joreskog's Analysis of Covariance Structures. These operational indicators should serve as useful measures for strategy researchers in their efforts to test theoretical relationships⁶.

Notes

¹ The traditional notion of a measurement perspective is that it is a procedure for assigning "numbers" to objects or events according to a particular rule. If one subscribed to this view, measurement is to be regarded as an empirical requirement that is detached from the theoretical propositions and relationships. However, a more current view is that measurement is an intellectual and empirical activity that provides meaning to the theoretical variables (e.g., Hempel, 1952; Carnap, 1966). This paper is explicitly predicated on this view.

² The term, 'comparative approach' has been used within management research for several different reasons. In this paper, the use of this term is consistent with Hempel's (1952: p. 55) call for the use of scalars for measuring concepts and is distinguished from the classificatory approach that seeks to measure the presence or absence of a phenomenon.

³ The similarity of the two samples in terms of the importance attached to five business goals (such as market share, return on sales, cash flow, ROI, and sales growth rate) was assessed using the Kolmogorov-Smirnov (KS) test, which tests whether the two samples are drawn from the sample population. None of the KS Z -statistics were statistically significantly significant at $p < .01$, while one was marginally significant at $p < .05$. As one reviewer pointed out, a more rigorous approach would be to test the equality of covariance structures of the two samples (Joreskog and Sorbom, 1978), but this requires the use of data on all the indicators of the construct rather than the use of indicators pertaining to goal emphasis as done here. This could not be done since the indicators for the construct were not finalized at this stage. Nevertheless, the procedure adopted provides adequate support for the construction of the data set as done here.

⁴ The use of pairwise tests may appear to be inappropriate in the context of conceptualizing and measuring the six dimensions of the construct. It was decided that it is best to carry out such tests to assess the uniqueness of each dimensions (in the conventional spirit of discriminant validity) than test the distinctiveness of each dimension in a systemic framework. The latter would have required a much stronger set of assumptions than the use of pairwise tests.

⁵ The measurement tests for the performance dimensions followed the same procedure as done for the strategy dimensions. They satisfied the general criteria for content validity, as well as specific criteria for convergent and discriminant validity and reliability estimates within the Analysis of Covariance Structures framework. Detailed parameter estimates on request.

⁶ This paper is based on the author's Ph.D. dissertation that received the 1986 A. T. Kearney Award for Outstanding Research in General Management from the Business Policy and Planning Division of the Academy of Management. Appreciation is extended to John H. Grant who supervised the work and co-authored a preliminary version of this paper that was presented at the 1984 Academy of Management meetings in Boston. The two *Management Science* reviewers provided constructive comments and suggestions that improved the manuscript, but the usual disclaimer applies.

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Table 1
Characteristics of the Study Sample
(n = 201)

I. Title/Level of the "Informant"		
	Head of the Unit (i.e., Divisional President, Chief Operating Officer), or a Second-level Manager (i.e., Functional Heads)	79.6%
	Staff Managers (i.e., Strategic Planners)	20.4%
II. Range of Sales of the Business Unit		
	Less than \$50 million	12.5%
	\$51-100 million	19.5%
	\$101-250 million	21.0%
	\$251-500 million	14.0%
	\$501 million - \$1 billion	15.0%
	\$Over \$1 billion	18.0%
III. Business Category		
	Consumer Goods	45.0%
	Capital Goods	22.5%
	Raw or Semi-Finished Goods	3.5%
	Components for Finished Goods	12.0%
	Service	17.0%

Table 2
Assessment of Unidimensionality and Convergent Validity at
Mono-Method Level of Analysis: A Summary of Results

(1)	(2)	(3)		(4)	(5)
Dimension	No. of Indicators	CFA Results		p-level	Δ
		χ^2	df		
Aggressiveness	4	0.42	2	.52	.99
Analysis	6	12.8	9	.17	.91
Defensiveness	4	2.86	2	.24	.95
Futurity	5	6.92	5	.14	.94
Proactiveness	5	3.67	5	.59	.97
Riskiness	5	5.05	5	.41	.92

Table 3
Assessment of Internal Consistency
Reliability Indices

(1)	(2)	(3)
Dimension	No. of Indicators	ρ_c
Aggressiveness	4	0.68
Analysis	6	0.67
Defensiveness	4	0.53
Futurity	5	0.61
Proactiveness	5	0.64
Riskiness	5	0.53

Table 4: Assessment of Discriminant Validity

Test #	Description	ML Estimate Phi	t-value	Chi-Squared Constrained Model (df)	Statistics Unconstrained Model (df)	Difference
1	Aggressiveness With					
2	Analysis	(-) .079	(-) 0.078	122.98 (34)	38.06 (33)	84.92 (***)
3	Defensiveness	0.109	0.96	77.85 (19)	34.25 (18)	43.6 (***)
4	Futurity	(-) .130	(-) 1.28	112.75 (26)	29.78 (25)	82.97 (***)
5	Proactiveness	(-) .092	(-) .90	114.70 (26)	26.07 (25)	88.63 (***)
	Riskiness	0.253	2.5 (**)	87.55 (26)	42.74 (25)	44.81 (***)
6	Analysis With					
7	Defensiveness	0.947	12.16 (***)	60.14 (35)	59.72 (34)	0.42
8	Futurity	0.901	14.46 (***)	90.52 (43)	88.33 (42)	2.19
9	Proactiveness	0.426	4.48 (***)	153.95 (44)	105.29 (43)	48.66 (***)
	Riskiness	(-) .151	(-) 1.47	127.57 (44)	70.86 (33)	56.71 (***)
10	Defensiveness With					
11	Futurity	0.820	9.41 (***)	54.06 (27)	49.90 (26)	4.16 (*)
12	Proactiveness	0.510	4.84 (***)	79.84 (27)	58.89 (26)	20.95 (***)
	Riskiness	0.000	0	61.16 (27)	47.39 (26)	13.77 (***)
13	Futurity With					
14	Proactiveness	0.324	3.24 (***)	138.88 (34)	78.88 (33)	60.00 (***)
	Riskiness	(-) .016	0.15	137.15 (34)	81.13 (33)	56.02 (***)
15	Proactiveness With					
	Riskiness	(-) .079	(-) 0.785	122.14 (34)	68.93 (33)	53.22 (***)

(*) -- p <.10; (**) -- p<.01; (***) p <.001

Table 5
Assessment of Predictive Validity With Performance

STROBE Dimensions	PERFORMANCE DIMENSIONS			
	(1)	(2)	(3)	(4)
		Growth		Profitability
	γ	t-value	γ	t-value
Aggressiveness	0.087	0.937	-0.220	-2.429(***)
Analysis	0.194	1.987(**)	0.312	3.226(***)
Defensiveness	0.161	1.468	0.434	3.635(***)
Futurity	0.153	1.565	0.128	1.387
Proactiveness	0.294	2.855(***)	0.489	4.493(***)
Riskiness	-0.011	-0.117	-0.413	-4.066(***)

** - $p < .01$

*** - $p < .001$

Appendix - I: 29-Indicators for the Six-Dimensional Model of STROBE^a

Aggressiveness Dimension

- 1 Sacrificing profitability to gain market share
- 2 Cutting prices to increase market share
- 3 Setting prices below competition
- 4 Seeking market share position at the expense of cash flow and profitability

Analysis Dimension

- 1 Emphasize effective coordination among different functional areas
- 2 Information systems provide support for decision making
- 3 When confronted with a major decision, we usually try to develop thorough analysis
- 4 Use of planning techniques
- 5 Use of the outputs of management information and control systems
- 6 Manpower planning and performance appraisal of senior managers

Defensiveness Dimension

- 1 Significant modifications to the manufacturing technology
- 2 Use of cost control systems for monitoring performance
- 3 Use of production management techniques
- 4 Emphasis on product quality through the use of quality circles

Futurity Dimension

- 1 Our criteria for resource allocation generally reflect short-term considerations (rev)^b
- 2 We emphasize basic research to provide us with future competitive edge
- 3 Forecasting key indicators of operations
- 4 Formal tracking of significant general trends
- 5 "What-if" analysis of critical issues

Proactiveness Dimension

- 1 Constantly seeking new opportunities related to the present operations
- 2 Usually the first ones to introduce new brands or products in the market
- 3 Constantly on the look out for businesses that can be acquired
- 4 Competitors generally preempt us by expanding capacity ahead of them (rev)
- 5 Operations in larger stages of life cycle are strategically eliminated

Riskiness Dimension

- 1 Our operations can be generally characterized as high-risk
- 2 We seem to adopt a rather conservative view when making major decisions (rev)
- 3 New projects are approved on a "stage-by-stage" basis rather than with "blanket" approval (rev)
- 4 A tendency to support projects where the expected returns are certain (rev)
- 5 Operations have generally followed the "tried and true" paths (rev)

^a A Matrix of zero-order correlations among the 29-indicators is available on request.

^b(rev) - Reverse scored.

Appendix - II

The Indicators Used to Measure Business Performance

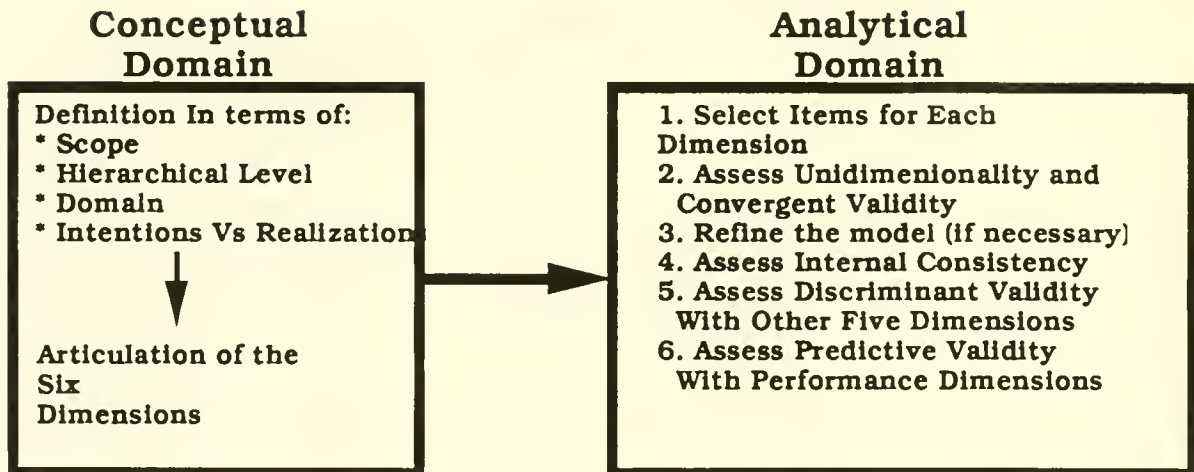
Growth Dimension

- 1 Sales growth position relative to competition
- 2 Satisfaction with sales growth rate
- 3 Market share gains relative to competition

Profitability Dimension

- 1 Satisfaction with return on corporate investment
- 2 Net profit position relative to competition
- 3 ROI position relative to competition
- 4 Satisfaction with return on sales
- 5 Financial liquidity position relative to competition

**Figure 1: An Overview of Conceptualizing
and Measuring the Proposed Strategy
Construct**



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